## December 3 Math 2306 sec. 53 Fall 2018

## Section 18: Sine and Cosine Series

**Solution of a Differential Equation** An undamped spring mass system has a mass of 2 kg attached to a spring with spring constant 128 N/m. The mass is driven by an external force f(t) = 2t for -1 < t < 1 that is 2-periodic so that f(t + 2) = f(t) for all t > 0. Determine a particular solution  $x_p$  for the displacement for t > 0.

If the mass starts from rest at equilibrium, determine the displacement x(t) for t > 0.

November 28, 2018

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